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SR  
12-8123

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant: Cassone, Alphonse      Docket No: 4139P2202  
Serial No: 09/619,357      Examiner: DeMille, Danton  
Filed: 07/19/00      Art Unit: 3764

Title: METHOD FOR TREATING BODY TISSUE DISEASE WITH  
ACOUSTIC WAVES

**APPEAL BRIEF**

**Real Party in Interest**

The real party in interest is the applicant, Alphonse Cassone.

**Related Appeals and Interferences**

Appellant knows of no related appeals or interferences.

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**Status of Claims**

On July 22, 2003, Appellant appealed from the final rejections of claims 1, 3-10, and 13-20, claims 2 and 12 having been cancelled, and claims 11 and 21 being cancelled in the amendment filed concurrently with this appeal brief.

**Status of Amendments**

In order to simplify the issues for this Appeal, an amendment canceling claims 11 and 21 is being filed concurrently with this appeal brief. In addition, Claim 13, formerly dependent from the now-cancelled Claim 12, is being amended to now depend from Claim 1.

## **Summary of the Invention**

Appellant's invention comprises a method for treating body tissue disease using acoustic waves. The claimed invention comprises submerging a low-frequency sonic transducer within a liquid-filled container and positioning a person having an inflammatory musculoskeletal connective tissue disorder a beneficial distance from and outside the container. Figure 1 shows transducer 10 immersed in container 12 containing water or another liquid. Detailed Description, p.9, ln. 20-22. A person 18 is shown positioned at beneficial distances from and outside the container, preferably at a distance of between one foot and twenty feet. Detailed Description, p. 10, ln. 15-24. The person 18 outside the container is exposed to the acoustic waves from the transducer within the container for a beneficial amount of time, preferably in the range of twenty minutes to thirty minutes. Detailed Description, p. 11, ln. 17-25. The acoustic waves from the transducer occur at frequencies determined by the Appellant to be therapeutically beneficial for treatment of inflammatory musculoskeletal connective tissue disorders between approximately four hundred and eight hundred Hertz. Detailed Description, p. 11, ln. 10-16.

## **Issues**

Claims 1, 3-10, and 13-20 were rejected by the Examiner as unpatentable under 35 U.S.C. § 103(a) over US Patent 3,585,991, issued June 22, 1971, to Balamuth, in light of published European patent application 98305097.2, published January 20, 1999, filed June 29, 1998 by Nedwell. Copies of both references are attached hereto for the Board's convenience.

## **Grouping of Claims**

Claims 1 and 3-10 and 13-20 stand or fall together.

## **Argument**

The Section 103 Rejection of Claims 1, 3-11, and 13-20.

The Examiner rejected claims 1, 3-11, and 13-20 as being allegedly unpatentable over Balamuth in view of Nedwell. Appellant respectfully submits that these claims are not rendered obvious in light of the cited references or their combination.

Appellant's independent claim 1, from which dependent claims 3-11 and 13 depend, and independent claim 14, from which claims 15-20 depend, both require providing a transducer submerged in a liquid-filled container, and positioning a person having an inflammatory musculoskeletal connective tissue disorder a therapeutically beneficial distance away from and outside the container, and not immersed within the liquid in the container.

Balamuth teaches a liquid-filled container ("acoustical auditorium") having transducers within a wall cavity of the container to impart ultrasonic vibrations to the interior wall of the container; the interior wall of the container transmits the vibrations into the liquid (col. 5, ln. 40-46). The ultrasonic vibrations in the liquid propagate to contact a person immersed in the liquid, thereby producing a therapeutic effect on the person. (Col. 5, ln. 14-19).

Nedwell teaches a water-filled container having a transducer to impart low-frequency vibrations into the liquid, the vibrations in the liquid propagating to contact a person immersed in the water, thereby loosening mucus in the person's lungs. Nedwell teaches that the transducer is either immersed directly in the water or mounted in the wall of the container behind a waterproof membrane or a movable portion of the container wall, through which the low-frequency vibrations are transmitted into the water.

**I. The Prior Art References Alone or in Combination Fail to Disclose or Suggest the Claimed Limitation of Positioning a Person Outside and Away from the Container**

Neither Balamuth nor Nedwell disclose or suggest the feature in the claimed invention of positioning a person having an inflammatory musculoskeletal connective tissue disorder a therapeutically beneficial distance outside of and away from the container. Instead, both Balamuth and Nedwell teach away from this claimed feature by disclosing only positioning a person within the container. See, for example, Figures 1 and 2 of Balamuth showing a person 12 inside the container (acoustic auditorium) 14 immersed in fluid medium 15. See also Figures 5-8 of Nedwell showing a person 28 in a bath 24 filled with water 30. Because both Balamuth and Nedwell are defective in failing to disclose or suggest positioning a person a therapeutically beneficial distance outside of and away from the container, the combination Balamuth with Nedwell is also defective in failing to disclose or suggest positioning a person a therapeutically beneficial distance away from the container.

## II. The Prior Art References Alone and in Combination Teach Away from the Claimed Invention by Teaching an Alleged Benefit Only By Immersion of a Person in a Fluid

Similarly, neither Balamuth nor Nedwell disclose or suggest that a person having an inflammatory musculoskeletal connective tissue disorder could receive any beneficial effect by being positioned a distance outside of and away from a container having a transducer submerged in a fluid. To the contrary, both references teach away from the claimed invention by only suggesting that particular therapeutic benefits taught by each reference may be obtained by immersing a person in the fluid containing or directly receiving vibrations from the transducer. For example, Balamuth teaches at column 3, lines 13-18, "Once the human 12 is placed in the acoustic auditorium 14 with the fluid medium 15 therein then a transmission through the fluid medium of acoustic vibrations may occur... so that the energy penetrates pervasively into the acoustically accessible inner region of the body for physiotherapy effects" (emphasis added). Similarly, Nedwell, at column 1, lines 40-54, describes particular benefits of sound waves in water, including strong interaction with the body, easy transmission into the body, and the kinetic energy of the water resulting in a fundamental pulmonary resonance; also, Nedwell at column 2, lines 8-19, describes a similarly beneficial Helmholtz resonance for a submerged human. Because both Balamuth and Nedwell teach away from a person receiving therapeutic effects at a position outside the container, the combination of Balamuth with Nedwell also teaches away from receiving therapeutic effects at a position outside of and away from the container.

### III. The Claimed Invention is not Inherent in the Prior Art References Alone or in Combination.

Furthermore, the claimed method of treating a person having an inflammatory musculoskeletal connective tissue disorder is not inherent in the cited references. To establish inherency in a prior art reference, the missing descriptive matter must be necessarily present and persons of ordinary skill in the art must recognize the characteristic as necessarily present. In re Robertson, 169 F.3d 743, 745 (Fed.Cir. 1999) (quoting Continental Can Co. v. Monsanto Corp., 948 F.2d 1264, 1268 (Fed.Cir. 1991)). “Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” Id. (quoting In re Oelrich, 666 F.2d 578, 581 (C.C.P.A. 1981)).

Neither Balamuth nor Nedwell alone or in combination has as a necessarily present element a person having an inflammatory musculoskeletal connective tissue disorder positioned outside of a fluid-filled container housing a submerged low-frequency sonic transducer, as in the claimed invention. Further, neither reference alone or in combination has as a necessarily present element the exposure of a person outside such a container to acoustic waves at the therapeutically beneficial frequency of between approximately four hundred and eight hundred Hertz. Still further, neither reference alone or in combination has, as a necessarily present element, such a person outside such a container remaining exposed to acoustic waves from the transducer for a therapeutically beneficial period of time. Finally, neither reference alone or in combination has as a necessarily present element the combination of all of the above features of the claimed invention.

The Examiner's allegation that, inherently, the claimed method of treatment would be preformed by a person outside the tub of Balamuth, fails to render the claimed invention obvious over Balamuth. Advisory Action, August 1, 2003. Balamuth teaches general therapeutic effects of the combination of ultrasonic fluid vibrations micromassaging a person's body located within a fluid, accompanied by an audiovisual sensory stimulation. Nedwell teaches a specific method of loosening mucus in a person's lungs by submerging the person in water and exposing them to low frequency vibrations, preferably between 16 and 160 Hertz. Thus, treatment of a person having inflammatory musculoskeletal connective tissue disorder, outside a container, which is not taught or suggested by either Balamuth or Nedwell, and is directly contrary to the teachings of both references, at a therapeutically beneficial distance which is not disclosed or suggested by either reference, for a therapeutically beneficial length of time which is also not disclosed or suggested by either reference, "the mere fact that a certain thing may result from a given set of circumstances is not sufficient." Id.(emphasis added).

The above noted features of Appellant's claimed invention are not inherent in the cited references because these features do not satisfy the standard of being necessarily present. The Appellant respectfully submits that these features of the claimed invention patentably distinguish the claimed invention over Balamuth in view of Nedwell.

#### IV. The Balamuth and Nedwell References Cannot be Properly Combined to Render the Claimed Invention Obvious

Finally, the Examiner improperly combined Balamuth with Nedwell because of the absence of any teaching, suggestion, or motivation for the combination.

Obviousness can not be established by hindsight combination to produce the claimed invention. In re Gorman, 933 F.2d 982, 986 (Fed.Cir.1991). The test of whether it would have been obvious to select specific teachings and combine them must be met by identification of some suggestion, teaching, or motivation in the prior art, arising from what the prior art would have taught a person of ordinary skill in the field of the invention. In re Fine, 837 F.2d 1071, 1075 (Fed.Cir.1988).

Balamuth teaches use of an ultrasonic transducer behind an inner wall of a liquid-filled container and mounted to the wall. Balamuth, col. 5, ln. 40-45. The ultrasonic transducer of Balamuth is run at "quite a low level of intensity for safety purposes" and "no cavitation levels of vibration are permitted." Balamuth, col. 2, ln. 55-58. The purpose of the transducer is to impart a vibration into the liquid which performs a micromessaging action on a person immersed in the liquid. Balamuth, col. 3, ln. 42-43. The intensity of vibration is so low that a person immersed in the liquid does not feel the vibration of the liquid. Balamuth, col. 2, ln. 59-60.

In contrast, Nedwell teaches use of a low-frequency transducer to impart vibrations in water to dislodge or loosen mucus in the lungs of a person immersed in the water. Nedwell, col. 2, ln. 20-27. The transducer in Nedwell operates in a range of approximately 16 Hz to 160 Hz. Nedwell, col.2, ln. 28-35. This range is specified to enable resonance effects in the immersed person's lungs, one resonance occurring at about 16 Hz, Nedwell, col. 2, ln. 10, and a second resonance occurring at around 80 Hz. Nedwell, col. 1, ln. 51-54. The effect of this resonance, and the purpose of the low-frequency transducer, is to cause the vibrations in the water to interact strongly with the immersed person's body, to vibrate strongly the immersed person's lungs, and to act as a



mass storing kinetic energy next to the immersed person's lungs. Nedwell, col. 1, ln. 43-

52. Further evidence of this strong interaction with the person is shown by the proposed

use of an accelerometer attached to the person's chest to measure the intensity of the

vibrations and tune the frequency of the transducer to maximize beneficial effects

occurring at resonance. Nedwell, col. 2, ln. 47-54.

Figures 1-4 of Nedwell show suitable positions of the transducer 34 to achieve this

strong interaction with the person 28 immersed in the water 30. These figures

demonstrate the desirability of imparting vibrations into the water that are not attenuated

by a rigid wall separating the transducer from the water. Figures 5 and 6 show the

transducer in direct contact with the water with no intervening wall. Figure 7 shows a

method of vibrating a movable portion 38 of the wall, and Figure 8 shows a variation

using a flexible membrane 42 that is used to isolate a non-waterproof transducer located

in the wall from the water.

Therefore, the art teaches away from substituting the low-frequency, strongly

interacting transducer taught by Nedwell into the apparatus of Balamuth as the Examiner

proposes. The utility of the transducer in Balamuth for generating therapeutic effects

from low-intensity, ultrasonic micromessaging vibrations would be severely undermined

with the substitution of the low-frequency, chest-vibrating transducer of Nedwell.

Furthermore, the placement of the transducer directly in the water as shown in Figure 6 of

Nedwell allows low-frequency, resonant vibration of the water without attenuation by an

intervening wall. This positioning is not taught, suggested, or even desirable in the

apparatus of Balamuth. Instead, Balamuth seeks to have the components of the overall

system substantially concealed from the person receiving treatment, Balamuth, col. 4, ln.

74 – col. 5, ln. 1, in accordance with the synergic effects of the combined aural, visual, tactile, aural, and olfactory sensory-stimulating systems described. Balamuth, col. 7, ln. 38-42.

Neither Balamuth nor Nedwell teach or suggest the combination as proposed by the Examiner. Because replacing the transducer of Balamuth with the transducer of Nedwell would undermine the function of the system of Balamuth, there is strong motivation in the art against the proposed combination. Lacking any teaching, suggestion, or motivation for combining references, and the fact that this combination cannot be technically made as set forth above, the references cannot be properly combined as the Examiner seeks, and therefore the Examiner's rejection of Appellant's claimed invention for obviousness should be reversed.

#### **Summary**

For the foregoing reasons, Appellant believes that the Examiner's rejections of Claims 1, 3-10, and 13-20 were erroneous, and reversal of the Examiner's decision is respectfully requested.

#### **Appendix**

The following claims are at issue in this appeal.

1. A method for treating inflammatory musculoskeletal connective tissue disorders comprising the steps of:

providing a low frequency sonic transducer;

immersing said low frequency sonic transducer in an interior of a liquid-containing container and below an upper surface of a liquid in said liquid-containing container;

positioning a person having an inflammatory musculoskeletal connective tissue disorder a therapeutically beneficial distance from said container; and

exposing said person for a therapeutically beneficial period of time to acoustic waves from said low frequency sonic transducer at a therapeutically beneficial frequency;

wherein said therapeutically beneficial frequency is between approximately four hundred and eight hundred Hertz.

3. The method of Claim 1 wherein said therapeutically beneficial distance is approximately one foot from said container.

4. The method of Claim 1 wherein said therapeutically beneficial distance is approximately five feet from said container.

5. The method of Claim 1 wherein said therapeutically beneficial distance is approximately ten feet from said container.

6. The method of Claim 1 wherein said therapeutically beneficial distance is approximately twenty feet from said container.

7. The method of Claim 1 wherein said therapeutically beneficial period of time is between approximately two seconds and one hour.

8. The method of Claim 7 wherein said therapeutically beneficial period of time is between approximately fifteen minutes and forty-five minutes.

9. The method of Claim 8 wherein said therapeutically beneficial period of time is between approximately twenty minutes and thirty minutes.

10. The method of Claim 9 wherein said therapeutically beneficial period of time is approximately twenty-five minutes.
13. The method of Claim 1 wherein said therapeutically beneficial frequency is approximately 600 Hertz.
14. A method for inflammatory musculoskeletal connective tissue disorders comprising the steps of:
- providing a low frequency sonic transducer;
  - immersing said low frequency sonic transducer in an interior of a liquid-containing container and below an upper surface of a liquid in said liquid-containing container;
  - positioning a person having an inflammatory musculoskeletal connective tissue disorder a therapeutically beneficial distance from said container; and
  - exposing said person for between approximately fifteen minutes and forty-five minutes to acoustic waves from said low frequency sonic transducer at approximately six hundred Hertz.
15. The method of Claim 14 wherein said person has arthritis.
16. The method of Claim 14 wherein said person has polymyositis.
17. The method of Claim 14 wherein said person has one of muscle cramps, muscle spasms, and muscle tension.
18. The method of Claim 14 wherein said person has one of menstrual cramping and endometrial pain.
19. The method of Claim 14 wherein said person has bursitis.
20. The method of Claim 14 wherein said person has stress.

Respectfully submitted,  
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